

# Advanced LIGO Engineering Change Request (ECR)

**ECR Title: Increase Transimpedance for OPO  
TRANS DCPD**

**DCC No: E1800040-v1**

**Date: 2/21/2018**

**Requester: Daniel Sigg**

**Impacted Subsystem(s):**

**SQZ**

**Description of Proposed Change(s):** We propose to modify channel 1 of the Auxiliary Signals Concentrator 7, [D1200543](#), to be of the Baffle PD variant. This increases the maximum transimpedance gain from ~62 kΩ to 20 MΩ. Replace parts below and mark PCB as modified.

R8A	10K	P10KDACT-ND
R9A	10M	749-1744-1-ND
R10A	100K	P100KDACT-ND
R11A	1M	P1MDACT-ND
C8A	220n	399-11188-1-ND
C9A	220p	1276-1164-1-ND
C10A	22n	445-6949-1-ND
C11A	2.2n	445-7507-1-ND

**Reason for Change(s):** The green light power in transmission of the OPO is ridiculously small, of the order 50nW, due to a mirror transmission coefficient that is only ~1 ppm.

**Estimated Cost: ~200\$**

**Schedule Impact Estimate: small**

**Nature of Change (check all that apply):**

- Hardware Safety  
 Correct Hardware  
 Correct Documentation

- Improve Hardware/Software  
 Improve/Clarify Documentation  
 Change Interface  
 Change Requirement

**Importance:**

- Desirable for ease of use, maintenance, safety  
 Desirable for improved performance, reliability  
 Essential for performance, reliability  
 Essential for function  
 Essential for hardware safety

**Urgency:**

- No urgency  
 Desirable by date/event:  
 Essential by date/event:  
 Immediately (ASAP)

**Impacted Hardware (select all that apply):**

- Repair/Modify. List part & SNs: \_\_\_\_\_  
 Scrap & Replace. List part & SNs: \_\_\_\_\_  
 Installed units? List IFO, part & SNs: \_\_\_\_\_  
 Future units to be built

**Impacted Documentation (list all dwgs, design reports, test reports, specifications, etc.):**

[D1700176](#)

# Advanced LIGO Engineering Change Request (ECR)

## Disposition of the proposed change(s):

The disposition of this proposed engineering change request is to be completed by Systems Engineering and indicated in the “Notes and Changes” metadata field in the DCC entry for this ECR. The typical dispositions are as follows:

- **Additional Information Required:** in which case the additional information requested is defined. The ECR requester then re-submits the ECR with the new information using the same DCC number for the ECR but with the next version number.
- **Rejected:** in which case the reason(s) for the rejection are to be given
- **Approved**
- **Approved with Caveat(s):** in which case the caveat(s) are listed
- **TRB:** the ECR is referred to an ad-hoc Technical Review Board for further evaluation and recommendation. It is the System Engineer’s (or designee’s) responsibility to organize the TRB. The System Engineer (or designee) then makes a technical decision based on the TRB’s recommendation. Links to the TRB’s documentation (charge, memos, final report, etc.) are to be added to the “Related Documents” field for this ECR.
- **CCB:** a change request for approval of additional funds or schedule impact is to be submitted to the Configuration Control Board. Links to the CCB’s documentation (CR, etc.) are to be added to the “Related Documents” field for this ECR.

## Concurrence by Project Management:

Acknowledgement/acceptance/approval of the disposition is to be indicated by the electronic “signature” feature in the DCC entry for this ECR, by one the following personnel:

- Systems Scientist
- Systems Engineer
- Deputy Systems Engineer